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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/541,552	04/03/2000	Maury Zivitz	53009-223482	5090

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EXAMINER

SODERQUIST, ARLEN

ART UNIT

PAPER NUMBER

1743

DATE MAILED: 09/05/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

09/541,552

Applicant(s)

ZIVITZ, MAURY

Examiner

Arlen Soderquist

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 28 June 2002.
- 2a) ☒ This action is FINAL. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-23 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-23 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 12 February 2002 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.  
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

## Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☐ All b) ☐ Some \* c) ☐ None of:  
1. ☐ Certified copies of the priority documents have been received.  
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).  
\* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).  
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

## Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_\_ 6) ☐ Other: \_\_\_\_\_

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1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 1, 10-13, 15-18 and 20 are rejected under 35 U.S.C. 102(b) as being anticipated by Harman. In the published application Harman teaches noise a reduction technique for electrochemical cells. A method and apparatus are disclosed for the electrochemical determination of an electrochemically reactive substance in a fluid stream and for simultaneously determining and subtracting from the current flow due to the reaction of the sought-for substance, current flow caused by non-Faradaic conditions and other non-sought-for electrochemically reactive substances. The sensor consists of a counter electrode, a sensing electrode, and a compensating electrode. The sensing electrode in combination with the counter electrode forms the measurement loop and is biased to the concentration polarization potential of the sought-after substance. The compensating electrode in combination with the counter electrode forms the compensation loop and is biased to a different potential sufficiently low to cause current flow between the counter electrode and the compensating electrode due to non-Faradaic phenomena and/or other electrochemically reactive substances which react below the potential of the sensing electrode. Circuitry is provided for subtracting the compensating electrode signal output from the sensing electrode signal output and the difference is a signal which represents the diffusion current flow due to the electrochemical reaction of the sought after substance.

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

4. Claims 1-23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Parks in view of Harman. In the patent Parks teaches a biosensor electrode excitation circuit that is substantially similar to the claimed device. The device has two electrodes (12,14) forming a measurement loop that includes a test cell (10) on a substrate (16). Figure 3 shows a circuit for applying potential to the electrodes for measurement of an analyte. Parks does not teach a noise cancellation loop to cancel the effects of electromagnetically propagated energy.

In the published application Harman teaches noise a reduction technique for electrochemical cells. A method and apparatus are disclosed for the electrochemical determination of an electrochemically reactive substance in a fluid stream and for simultaneously determining and subtracting from the current flow due to the reaction of the sought-for substance, current flow caused by non-Faradaic conditions and other non-sought-for electrochemically reactive substances. The sensor consists of a counter electrode, a sensing electrode, and a compensating electrode. The sensing electrode in combination with the counter electrode forms the measurement loop and is biased to the concentration polarization potential of the sought-after substance. The compensating electrode in combination with the counter electrode forms the compensation loop and is biased to a different potential sufficiently low to cause current flow between the counter electrode and the compensating electrode due to non-Faradaic phenomena and/or other electrochemically reactive substances which react below the potential of the sensing electrode. Circuitry is provided for subtracting the compensating electrode signal output from the sensing electrode signal output and the

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difference is a signal which represents the diffusion current flow due to the electrochemical reaction of the sought after substance.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the compensating electrode of Harman into the Parks device and method because of the ability to remove interference from non-Faradaic phenomena and/or other electrochemically reactive substances which react below the potential of the sensing electrode as taught by Harman.

5. Applicant's arguments filed June 28, 2002 have been fully considered but they are not persuasive. Relative to the differences between the instantly claimed device and the disclosure of the applied Harman reference the following comments are appropriate. First the instantly claimed device only requires that there be two electrodes in the measurement loop and the noise cancellation loop neither requires or excludes electrodes as a part of the loop. Thus, the three electrodes of Harman is clearly within the claim scope. Second, the instant claims rejected by Harman do not set forth specific structure for the connection between the measuring loop and the noise cancellation loop in order to cancel the noise. Thus, the overlapped connection between the loops is within the scope of the claims rejected as anticipated by Harman. Third the noise cancelled in the Harman device inherently includes electromagnetically produced noise. As evidence of this applicant is first directed to page 3 lines 20-26 which teach that the non-Faradic currents are of two types: double layer capacitance charging currents and transient currents coupled into the amplifier by the sensor. Examiner would like to focus on the second type of noise currents and ask what is the source of these transient currents. As an answer to this examiner directs applicant to the English language summary found on page 185 of the newly cited Collomb reference. In it a three electrode setup is described that is substantially similar to that described in Harman: measurement, reference, and auxiliary. The last sentence on page 185 clearly teaches that electromagnetic and static noise (interference) was inherent in measurements of that type and are corrected by the three electrode configuration. Based on this, examiner submits that the Harman device inherently

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removes the same type of noise that applicant is trying to remove with the configuration that is shown in the figures. Thus Harman is anticipatory of the listed claims.

Relative to the combination of references, examiner agrees that Parks does not anticipate the claims, however as explained above the Harman reference does have teaching that anticipate a portion of the claims. Additionally, since the arguments directed to the Harman reference are incorrect, the arguments directed to the combination of Parks with Harman are not persuasive.

6. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. The cited reference is related to noise and other interference signal canceling devices and methods.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Arlen Soderquist whose telephone number is (703) 308-3989. The examiner's schedule is variable between the hours of about 5:30 AM to about 5:00 PM on Monday through Thursday and alternate Fridays.

For communication by fax to the organization where this application or proceeding is assigned, (703) 305-7719 may be used for official, unofficial or draft papers. When using this number a call to alert the examiner would be appreciated. Numbers for faxing official papers are 703-872-9310 (before finals), 703-872-9311 (after-final), 703-305-7718, 703-305-5408 and 703-305-5433. The above fax numbers will generally allow the papers to be forwarded to the examiner in a timely manner.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0661.



September 4, 2002

ARLEN SODERQUIST  
PRIMARY EXAMINER